

### **REMARKS**

Claims 27, 31 and 39 have been canceled without prejudice or disclaimer. The Title and Abstract have been amended. Two drawing Replacement Sheets for Figures 5, 6 and 7 are attached. Claims 32 to 38 have been amended herein, wherein support for these amendments can be found throughout the application as originally filed, for example on pages 13 to 15 and Figure 5. Applicant asserts that these amendments do not introduce new matter within the meaning of 35 U.S.C. §132. Subsequent to the entry of the present amendment, claims 32 to 38 are pending and at issue.

#### **I. Title**

The Examiner alleges that the title of the invention is not descriptive. Applicant has changed the title to "Optical Irradiation Device having LED and Heat Pipe" as requisitioned by the Examiner.

#### **II. Abstract**

The Examiner objects to the abstract, alleging the abstract fails to concisely disclose the subject matter of the instant invention.

Applicant has amended the abstract to read as follows:

"An optical irradiation device incorporating a plurality of LEDs arranged in one or more clusters or arrays. A heat pipe is provided to conduct heat away from the LEDs allowing the LEDs to be driven to produce more radiation than would be possible without the heat pipe."

#### **III. Drawings**

The Examiner indicates that new corrected drawings are required because the proposed drawing corrections presented in the paper filed March 15, 2002 did not include corrected drawing sheets.

Applicant herewith submits corrected Figures 5, 6 and 7 on new drawing sheets 2/4 and 3/4, which were proposed and presented in the correspondence of March 15, 2002.

**IV. Claim Objections**

The Examiner objects to claims 31, 32, 37 and 38, alleging various informalities.

A. Applicant has withdrawn claim 31, thereby rendering the Examiner's objection thereto moot. Applicant therefore respectfully requests that the Examiner withdrawn this objection.

B. Applicant has amended claim 32, currently on file, in order to correct a typographical error. Applicant has replaced the word "hear" with the word "heat" as requisitioned by the Examiner. Applicant therefore respectfully requests that the Examiner withdrawn this objection.

C. Applicant has also amended claims 37 and 38 currently on file, replacing the terms "further comprising" with the terms "wherein the one or more LEDs comprise". Support for this amendment can be found throughout the application as originally filed, for example on pages 5 to 9 and Figures 1 to 3. Applicant therefore respectfully requests that the Examiner withdrawn this objection.

**V. Rejection under 35 U.S.C. §112**

The Examiner stated that claim 36, currently on file, is rejected under 35 U.S.C. §112, second paragraph, asserting that this claim is indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. The Examiner alleged that regarding claim 36, it is not clear what the phrase "more radiation" means.

Applicant has amended claim 36 in order to more precisely define the scope of protection being sought. Applicant has amended claim 36 to read “the one or more heat pipes provides a means for cooling the one or more LEDs such that the one or more LEDs are capable of being driven to produce more radiation than the one or more LEDs would be capable of without the one or more heat pipes”. Applicant asserts that a worker skilled in the art would readily understand the meaning of amended claim 36, and therefore complies with 35 U.S.C. §112, second paragraph. Applicant respectfully requests that this objection be withdrawn.

**VI. Rejection under 35 U.S.C. §102**

The Examiner stated that claims 27 and 31 to 38 currently on file, are rejected under 35 U.S.C. §102(e), alleging that these claims are anticipated by United States Patent No. 4,729,076 to Masami *et al.*, herein after referred to as Masami. The Examiner alleged that all the limitations of these claims are disclosed by Masami.

Having regard to claim 32, Applicant respectfully disagrees with the Examiner asserting that Masami discloses that there are a plurality of components positioned between the LEDs and the heat sink or heat absorber. Specifically, with reference to Figure 4 and column 2, lines 15 to 22, Masami specifically defines that between the LEDs and the heat sink are positioned at least a printed circuit board (PCB) to which the LEDs are connected, wherein the PCB is encapsulated by a resin filler thereby securing the LEDs thereto. In addition, between the resin filler and the heat sink is positioned an insulation sheet. Therefore, as defined by Masami, in the region separating the heat sink and the LEDs there is placed a plurality of layers which include at least a PCB, a resin filler and an insulation sheet. Applicant therefore asserts that Masami does not disclose a “thermal connector connecting the one or more LEDs and the one or more heat pipes” as explicitly defined in claim 32, submitted herewith. Applicant thus asserts that claim 32 is

novel over Masami and therefore respectfully requests that the Examiner withdraw this 35 U.S.C. §102(e) objection.

Based on the above, Applicant asserts that independent claim 32 is novel in light of Masami. Applicant further asserts that as claims 33 to 38 are directly or indirectly dependent on claim 32, these dependent claims are equally novel over Masami. In addition, the Applicant has withdrawn claims 27 and 31. Applicant therefore respectfully requests that the Examiner withdraw this 35 U.S.C. §102(e) objection.

#### **VII    Rejection under 35 U.S.C. §103**

The Examiner stated that claim 39 is rejected under 35 U.S.C. §103(a), alleging that this claim is unpatentable over Masami in view of common general knowledge.

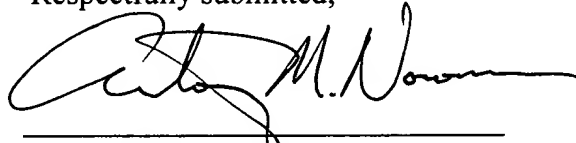
The Examiner alleged that Matsuda discloses all of the limitations of the claim, except the light emitting diodes being thermally coupled to two or more heat pipes. The Examiner alleged that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use two or more heat pipes, since it has been held that mere duplication of essential working parts of a device involves routine skill in the art. The Applicant has withdrawn claim 39 thereby rendering the Examiner's objection moot and therefore respectfully requests this objection be withdrawn.

**VIII. Conclusion**

Applicant asserts that, as discussed in detail above, claims 32 to 38, submitted herewith, are in compliance with 35 U.S.C. §112, 35 U.S.C. §102 and 35 U.S.C. §103. Applicant submits that pending claims 32 to 38 are in a condition for allowance. Reconsideration and withdrawal of the Examiner's rejections are hereby requested. Allowance of all the claims pending in this application is earnestly solicited. In the event any matters remain to be resolved, the Examiner is requested to contact the undersigned at the telephone number given below so that a prompt disposition of this application can be achieved.

No fee is believed to be due in connection with this submission. However, the Commissioner is hereby authorized to charge any other fees associated with the filing submitted herewith, or credit any overpayments to Deposit Account No. 07-1896 referencing the above-identified attorney docket number. A duplicate copy of this Transmittal sheet is enclosed.

Respectfully submitted,



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Date: July 25, 2006

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In re Application of  
Mills and Jandt  
Application No.: 09/509,433  
Filed: May 30, 2000  
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PATENT  
Attorney Docket No.: MBM1420

**Amendments to the Drawings**

The attached Replacement Sheets of drawings include changes to Figures 5, 6 and 7. These Replacement Sheets replace the original sheets of drawings with Figures 5, 6 and 7 filed with the application. Annotated Sheets were provided in the Response filed March 15, 2002 showing the changes to Figures 5, 6 and 7.

Attachment: Two Replacement Sheets